Building organisational trust with new technology partners in NPD projects: What to do when competence trust fails

BUILDING ORGANISATIONAL TRUST WITH NEW TECHNOLOGY PARTNERS IN NPD PROJECTS: WHAT TO DO WHEN COMPETENCE TRUST FAILS?[1]

Raluca Bunduchi[*] & Sanda Berar[**]

University of Aberdeen Business School, Dunbar Street, Aberdeen, AB24 3QY, tel: 0044 (0) 1224 27 3318; [*]email: r.bunduchi@abdn.ac.uk ; [**] sanda_berar@yahoo.com

ABSTRACT

To support innovative product development, firms are increasingly required to collaborate with unfamiliar partners to access technologies outside their current supplier base. A key challenge in managing new relationships is lack of trust. We explore the mechanisms that firms employ to build trust with new technology suppliers in new product development (NPD). We identify four mechanisms to build trust with unfamiliar suppliers in NPD: (1) gathering information about a partner competencies to build *competence trust*, and (2) setting mutual goals early on in the relationship to preserve equity and fairness, (3) relying on personal trust between the individuals enacting the organisational relationship, and (4) relying on shared problem solving rather than contract based dispute resolution to build *goodwill trust*. We explore how these mechanisms were employed in four NPD projects within one telecom company. We find that when gathering information to build competence trust fails, shared problem solving emerges as the key mechanism for building goodwill trust. Our findings also highlight the interdependency between the mechanisms employed to develop goodwill trust: shared problem solving is found to be more effective to build goodwill trust in the presence of strong mutual interests and strong personal bases for trust.

INTRODUCTION

The current rhetoric on open innovation has highlighted the role that collaboration plays in managing innovation and NPD (Chesborough *et al.*, 2006). Collaboration enables firms to reduce the cost and risks associated with innovation (Brown and Eisenhardt, 1995), while also providing access to new knowledge from partners (Chesbrough *et al.*, 2006). A key feature of these collaborative relationships is the existence of trust (Ring and Van de Ven, 1994), which was shown to be a pre-requisite for collaborative NPD (Bidault and Castello, 2009). In the context of product development, existing research found that trust improves the overall business performance by enabling learning and continuous improvement (Sako, 1997). Trust was also found to lead to greater information sharing and better coordination between partners (Dyer and Chu, 2003). Learning supports collaborative technology transfer between partners (Dodgson, 1993), while greater information sharing is associated with improved NPD outcomes including lower costs, faster development time and improved product quality (Petersen *et al.*, 2003). Trust was also found to increase partner's commitment and involvement in NPD collaborations (Walter, 2003). Stronger supplier commitment and involvement in NPD are both associated with more successful products (Ragatz *et al.*, 1997).

[1] This is a preprint of a paper presented at the Academy of Management Conference, 2012, August 3-7, Boston, US

A key problem associated with relying on trust is that trust develops over time, as a result of repeated interactions between partners (Ring and Van de Ven, 1992). Consequently, in an effort to reap the benefits associated with relying on trust in NPD collaborations, firms have invested significant effort into developing long term relationships with a limited number of trusted suppliers (Schiele, 2006). Dissolving these long term relationships is seen as reducing the firm's innovativeness (Schiele, 2006). However, there are occasions when a firm needs to engage in collaborative NPD with a unfamiliar supplier, for example in order to access new kinds of competencies to enable radical product development (Phillips *et al.*, 2006). Relationships with new partners can also occur in incremental projects, for example a firm might occasionally use a new supplier in order to reduce its dependency on an existing, long term strategic partner (see for example Wu and Choi, 2005), or to source different (or better) versions of an existing technology to support incremental product development. More widely, in the complex modern environment, characterised by fast pace of global competition and shortening of product and technology life cycles, collaborative relationships have to be develop fast if they are to have any chance of success (Blomqvist et al, 2008). At the outset of such new relationships, firms are incentivised to build trust fast in order to reap the benefits of low cost and risk, and greater information sharing in NPD.

The aim of this paper is explore the mechanisms that firms can employ to build initial trust with unfamiliar NPD suppliers, and their effectiveness at supporting the development of inter-organisational trust.

The paper is structured as follows: the next section discusses the concept of trust and trust building mechanisms. Based on a brief review of existing literature, the section identifies some of the key mechanisms that can be used to build organisational trust with unfamiliar partners. The research methodology is discusses in the next chapter followed by a description of four cases of NPD projects involving new technology suppliers in a telecom company. The discussion section analyses the how these mechanisms have been used and with what results. The paper ends with a conclusion section detailing the implications of this study for research and management.

WHAT IS TRUST AND HOW IT CAN BE DEVELOPED?

There is a huge amount of research interest in trust from a wide range of disciplines and perspectives. As a consequence, the concept of trust is used in many disparate ways in the literature. To help navigating the trust literature, Das and Teng (2004) differentiate between three types of trust constructs that researchers focus on when defining trust: (1) trust as a perceptions (subjective trust); (2) trust antecedents; and (3) the actions resulting from subjective trust (behaviour trust) (see Figure 1).

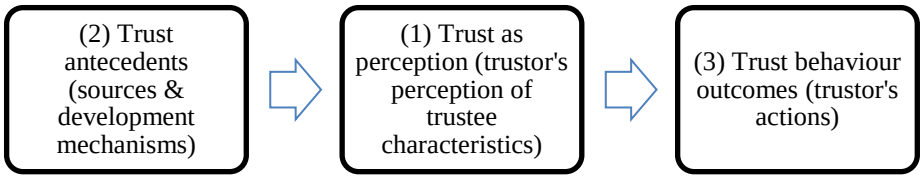

Figure 1: The three dimensions of trust

Trust as perception refers to the content of trust: what is trust about? For example, some researchers refer to trust in terms of the trustor's perceptions that the trustee possesses a number of characteristics such as ability, benevolence, and integrity (Mayer et al., 1995), or competence and goodwill (Sako, 1992). Trust antecedents refer to the conditions that have to be met in order for the trustor to perceive these characteristics in the trustee. For example, some researchers refer to trust in terms of its sources such as history of interaction (Ring and Van de Ven, 1992), interfirm adaptations (Hallen et al., 1991) and personal relationships (Zaheer et al., 1998), or in terms of its development process such as institutional, process and character based (Zucker, 1986). Trust behaviour refers to the actions that trustor engages in if he/she perceives the trustee as possessing these characteristics. For example, many researchers emphasise the behaviour outcomes of subjective trust, such as relying on, or being vulnerable to the actions of another party by taking risk (Mayer et al., 1995), or engaging in cooperative behaviour (Ring and Van de Ven, 1994). We focus here on the first two dimensions of trust, and explore the types of subjective trust (next section) and the processes that lead to trust development (the following section).

Trust as perception: types of trust

By its nature, trust is defined at the individual / personal level (Ring and Van de Ven, 1994) as "*the extent of a boundary-spanning agent trust in her counterpart in the partner organisation*" (Zaheer et al., 1998, pg. 142). Trust can also be defined at the organisational level, where the individuals in an organisation may "*share an orientation toward another organisation"* (Zaheer, *et. al.* 1998, pg. 143). Organisational trust is defined as "*the extent of trust placed in the partner organization by the members of a focal* organization". We focus here on the latter, and explore the mechanisms through which organizations (rather than individuals) can develop trust when engaging in relationships with unfamiliar partners.

The literature abounds with definitions of "subjective trust" which identifies the different dimensions of trust as perception at personal or at organisational level. One of the most pervasive definition of trust at personal level is provided by Mayer et al (1995) who relates trust to the turstworthness of the trustee which depends on his/ her: (1) **ability** which is the group of skills, competencies and characteristics that enable a party to have influence within some specific domain (*competence*, perceived expertise); (2) **benevolence** which is the extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive (*goodwill*) and (3) **integrity** refers to the trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable (character).

This definition has informed many of the approaches to define trust at organisational level[2]. For example, in an organisational context McEvily *et al.* (2003) distinguish between three types of trust: **competence trust** which is based on expectations about the technically competent role performance from those involved in the relationship, anticipated behavioural **integrity** and **benevolence** of others. In the same vein, one of the most common inter-organisational trust typology differentiates between **competence trust**, defined as confidence or predictability in one's expectations about another's behaviour, i.e. the confidence that the other party is capable of doing what it says it will do, and **goodwill trust**, defined as

[2] There are exceptions and definitions exist that depart from Mayer at al's typology, for example Zaheer et al., (1998) defines inter-organisational trust as including three components: the expectation that the other party can be relied on to fulfil obligations (**reliability**), the expectation that the other party will behave in a predictable manner (**predictability**) and the expectation that the other party will act an negotiate fairly when the possibility for opportunism is present (**fairness**).

confidence in another's goodwill, i.e. the confidence that the other party will make open-ended commitments to take initiatives for mutual benefit while refraining from unfair behaviour (Ring and Van de Ven, 1992; Sako, 1997; Sako and Helper, 1998). Consequently, while competence trust refers to confidence in the ability of the partner's to perform according to agreements, goodwill trust refers to confidence in its intentions to do so (Nooteboom, 1996).

Therefore, in defining "subjective trust" at inter-organisational level we differentiate between *competence trust* which refers to one's confidence in its exchange partner's competence in carrying out specific task; and *goodwill trust* which refers to one's confidence in its exchange partner's open commitment to supporting and continuing the relationship. Competence trust is based on a shared understanding of professional conduct and technical and managerial standards, while goodwill trust can exist only when there is consensus on the principle of fairness.

Inter-organisational trust development

In general, trust is believed to evolve slowly, through repeated interactions of increasing satisfaction (Blau, 1964). In an inter-organisational context, trust is seen as part of the gradual evolution of the relationship (Hakansson and Sharma, 1996), where confidence in the partner builds incrementally over time enabling greater investment, commitment and risk taking in subsequent interactions. Trust is thus built over time, through common history and repeated interactions with a particular exchange partner (Ring and Van de Ven, 1992).

Because trust takes time to develop, research on trust development mechanisms in general, NPD in particular, tended to focus on trust building between a focal firm and its existing exchange partners, rather than on trust building in new relationships. For example, Davenport et al. (1998) find that in research collaborations, goodwill trust can only be developed over time, as a result of ongoing interactions between research partners. Ragatz et al. (1997) also find that in relationships with NPD suppliers, trust is generally developed over time through "*performance to expectations*" (pg 197). In a similar vein, Bstieler (2006) finds that prior experience of the partner significantly enhances trust in NPD collaborations. In his study on the role of trust and learning in technological collaborations, Dodgson (1993) concludes that, "*in order to jointly develop new products and processes, and to match tacit and firm-specific skills and knowledge, a long-term perspective is necessary*" (pg 91). Thus inter-organisational trust building in NPD seems to be predominately explored from a long term perspective.

However, in certain contexts, the need for fast trust building with unfamiliar actors is imperative. For example Blomqvist *et al.* (2008) argues that in ambiguous contexts which incorporate high vulnerability (such as the internationalisation context of high tech born global firms, or new product innovation in fast changing markets) fast trust building is essential to establish successful collaboration. In these situations, the opportunity window for partnering firms to build trust may be very short and the options for allowing for trust development based on gradual investments and social interactions over time is limited.

Trust building mechanisms

By and large existing literature tends to focus on exploring trust development at personal level. Two of the most well known typologies of trust development mechanisms include Rousseau *et al.*'s (1998) and Zucker's (1986) (see table 1). At personal level, process-based

trust (Zucker, 1986) and relational trust (Rousseau *et al.*, 1998) are the dominant sources of trust. Both rely on past exchanges whereby individuals rely on transaction specific information to infer that the necessary trust exists for exchanges to occur in the future.

Table 1. Typologies of trust building mechanisms at personal level

Author	**Trust types**	**Stage in relationship**
Zucker (1986)	**Process-based trust** is linked to expected or past exchanges, and based on information about the trustee such as reputation. Process-based trust is specific to the transaction.	Late stage
	Character-based trust is linked to a person and based on its characteristics such as ethnicity, gender and age. Character-based trust is specific to the exchange partner.	Early stage
	Institutional-based trust is linked to formal societal structures depending on firm-specific or individual actions, on intermediary attributes and on regulations to create and sustain such trust. Institutional based trust is generalizable to a institutional setting	Early stage
Rousseau *et al.*, 1998	**Calculus based trust** relies on credible information, such as reputations and information from the network of relationships about another's goodwill and competencies.	Early stage
	Relational trust is based on the information from repeated interactions between partners. Specific mechanisms to build relational trust include deliberate risk taking and increasing interactions, for instance by joint goal setting, problem solving decision making and partner development activities.	Late stage
	Institution-based trust relies on legal forms and societal norms and values.	Early stage

Less explored are the mechanisms that firms employ to develop trust at organisational level. Without providing an exhaustive review, we include in Table 2 some of the mechanisms to develop trust at organisational level that have been identified in existing literature.

Table 2. Typologies of trust building mechanisms / development processes

Source	**Typology of trust building mechanisms**	**Stage in relationship**
Das and Teng, 1998	**Trust from risk taking** - the need for trust arises only in a risky situation (Mayer et al., 1995). Firms are likely to take a gradual approach in which partners start with limited investments and gradually take higher levels of risks as higher levels of trust are developed. In this context, trust is likely to be the accumulation of prior satisfactory experiences (Gulati 1995). Reputation is also important as the first piece of evidence to take some initial risk (Barney and Hansen, 1994).	Late stage
	Trust from equity preservation - to build trust among partners is to ensure that equity and fairness are mostly preserved. Equity means that the firm contributing the most resources to the alliance should get the most from it, and people have a strong need to maintain their sense of equity in exchange relationships. Equitable distribution of profits supports trust building.	Early stage (establish mutual and fair goals) / Late stage (evidence on fair distribution)
	Trust from communication - communication and proactive information exchange are important tactics to boost trust (Macneil, 1980). Open and prompt communication irons out the potential problems in daily operations; firms need to collect evidence about their partners' credibility and trustworthiness, and communication provides the basis for continuous interaction.	Late stage (communication during exchange) / early stage (early information gathering)
	Trust from interfirm adaptation - interfirm adaptations led to better fit	Late stage

	between partners (Hallen et al., 1991) but require flexibility and the willingness to accommodate deviations from the contract. Such willingness to carry out adaptations is essential for trust building (Macneil, 1980) and provides the incentive for acting for mutual interests rather than self-interests (Madhok, 1995).	
Ring and Van de Ven, 1992	**Trust based on norms of equity** which define the degree to which one party judge that another party will fulfil its commitments and that the relationship is equitable.	Early stage
	Trust based on non-legal sanctions which make it expedient for individuals and organisations to fulfil commitments: (1) repeated personal interactions (at personal level) and (2) the prospect of repeat business (at organisational level) => importance of reputation for trustworthiness	Late (repeated interactions) & early stages (future business)
Sako, 1997	**Legalistic remedies** including the use of formal contracts can support the creation of competence trust, but undermine the creation of goodwill trust.	Early stage
	A history of long term trading and rational calculation based on expectations of continued trading into the future which is induced by past association both support trust creation.	Late stage
	Gift exchange and credible commitments in the form of technical assistance and information exchange between the partners enhances both competence and goodwill trust.	Late stage

As can be seen from Table 2, many of these mechanisms focus on the development of trust over time. Trust based on interfim adaptations (Das and Teng, 1998) is based on adaptations and investments in new process and routines to accommodate the partners are based on prior experiences of working together and lead to future trust development. The gradual commitment to increase investments also encourage greater risk taking which leads to trust based on risk (Das and Teng, 1998). Equity preservation also assume the distribution of profits which takes time do realize, and communication – primarily open information sharing – focus on interactions between partners over time (Das and Teng, 1998). Open and prompt communication (Das and Teng, 1998) also tends to develop over time over time as a method to support this communication exchange during the relationship. History of previous exchanges, the exchange of commitments and gifts (Sako, 1997) and repeated personal interaction (Ring and Van de Ven, 1992) also assume a long term perspective that enable this commitment and personal exchanges to develop over time.

A key problem with trust building between new partners is that the partners have limited information about, and have no established affective bonds with each other, which significantly limits the sources of trust. This situation has been explored in the literature at personal level. Analyzing the personal level trust building mechanisms, Bigley and Pearce (1998) and McKnight *et al.* (1998) argue that to build trust early in new relationships, partners can rely only on mechanisms such as calculative bases trust based on rational decision making, personality or character based on personality characteristics, and institutional based trust based on guarantees, safety nets, or other structures such as legal remedies which do not require the presence of any kind of prior experience or firsthand knowledge of the other party. Much less attention has been given to explore the mechanisms that can be used to develop trust among unfamiliar actors at organisational level. Drawing from the work of Das and Teng (1998), Ring and Van de Ven (1992) and Sako (1997) who have identified the mechanisms to build trust at organisational level, the next section discusses which of these mechanisms can be applied to build organisational trust in with unfamiliar partners.

Organisational trust building mechanisms with unfamiliar partners

Drawing from the review above we can identify the following mechanisms to build organisational trust with unfamiliar partners: **gathering information** about the partner's technical competencies and its reputation which would contribute to competence trust building early on; **setting mutual goals and objectives** early on in the relationship to preserve the fairness and equity; **relying on personal trust** among the individuals enacting the organisational relationship; and **shared problem solving** as opposed to contract-based dispute resolution to deal with conflicts early on in the relationship.

(1) Gathering information about a partner's competencies

There is significant evidence that a partner's reputation decreases the level of distrust in business exchanges (Sako and Helper, 1997). Reputation has also been used as a proxy to measure competence trust (Lui and Ngo, 2004). Information gathering links to trust as communication development process as gathering information about a partner's credibility and trustworthiness enhances trust, and trust as risk-taking development process as gathering information about a partner's reputation would enable the focal firm to take some initial risk by committing to the relationship (Das and Teng, 1998). Information about a new partner can be collected either through direct and open communication early on with the partner (Das and Teng, 2001), or through the networking activities of other firms who can provide important information about the partner's technical competencies (Creed and Miles, 1996).

In an NPD context, information about a new supplier collected through recommendations from third parties was also found to be one of the key criteria for the selection of new suppliers (Croom, 2001). Bstieler (2006) also finds that open communication is a key trust antecedent in NPD collaborations.

(2) Setting mutual goals and objectives early on in the relationship

Early mutual consensus of fairness is a stepping stone for building goodwill trust (Sako, 1997), and can be seen as part of trust from equity preservation development process (Das and Teng, 1998). Mutual goal setting is also part of the inter-firm adaptation development process which is associated ongoing relationships (Das and Teng, 1998) but can also be seen as an early mechanism to be employed at the outset of a new relationship. Setting mutual goals and objectives would support the development of benign motivation and mutual interests in the relationship which would limit the possibility of interest conflicts and stimulate the development of goodwill trust (Creed and Miles, 1996). Mutual goals and objectives would also establish early some evidence of mutual commitment in the relationship. Evidence of mutual commitment to the relationship would enable the partners to confidence in the other party intensions in the relationship and was found to act as a strong indication for goodwill trust building (Miyamto and Rexha, 2004; Morgan and Hunt, 1998).

In the NPD context, Croom (2001) finds that the willingness of the supplier to adapt to the firm which is an indication of commitment (Hallen et al., 1991) was one of the key criteria that firms used to evaluate their new suppliers. Bstieler (2006) finds that perceived fairness in the relationship is a key trust antecedent in NPD collaborations. Blomqvist et al. (2005) finds that early on the contracting process enables the parties to set out explicit and mutual aims about the future between R&D partners thus establishing a common ground on which trust can develop.

(3) Relying on personal trust among the individuals enacting the organisational relationship

Personal trust relates to trust based on non-legal sanctions (Ring and Van de Ven, 1992) and is involves the existence of personal trust among the individuals enacting the relationship between the two organisations. Relationships among organisations only emerge, evolve, grow and dissolve over time as a consequence of individual activities. Moreover, the role relationships among individuals denoting the organisational level relationship and the inter-personal relationships are often dissimilar (Ring and Van de Ven, 1994). For example, while the organisations as such might be unfamiliar with one another, the individuals could arguable have been in a previous working relationship and hence be bounded by strong personal trust.

The role that personal relationships and structures play in building organisational trust has first been explored by Granovetter (1985) who was among the first to recognize that trust, as a characteristics of economic transactions among individuals and organisations alike, arises not only from institutional arrangements and norms of "generalised morality" as was previously assumed, but primarily from the network of personal relations in which these transactions are embedded. As individuals enact the relationship between organisations, their personal relations thus become part of the inter-organisational relationship, and the personal bonds that exist between the individuals might produce goodwill trust (Ring and Van de Ven, 1994). Personal trust is identified as one of the key sources of inter-organisational trust (Child, 2001; Zaheer et al., 1998). Personal trust has often been used as a proxy to measure goodwill trust between organisations (see Lui and Ngo, 2004).

In the context of technological collaborations for NPD, Dodgson (1993) noted that good inter-personal relationships and communication are essential for supporting inter-organisational trust.

(4) Shared problem solving

Shared problem solving relates to trust based on communication and on inter-firm adaptation (Das and Teng, 1998) which are employed to build trust as part of an ongoing relationship. Arguably however, a new partner can also have a choice of solving problems that emerge early on in a relationship either by relying on contract enforcement, or through shared understanding and negotiation. Das and Teng (2001) argue that relying on shared problem solving rather than contract-based dispute resolution enables partners to understand each other better, and increases their chances of showing "*mutual forbearance and their caring for each other*" (pg. 273), thus supporting goodwill trust building. In contrast, the use of formal contracts to solve problems is found to undermine the creation of goodwill trust (Sako, 1997).

Existing NPD research in this area does not shed much light on the role of shared problem solving. For example, while Bstieler (2006) finds that shared problem solving is not related to greater trust in NPD relationships, Blomqvist et al. (2005) finds that in R&D collaborations contract-based dispute resolution weakens goodwill trust and puts the collaboration at risk, and in order to avoid a breakdown of trust, R&D partners often rely on negotiating shared problem solving solutions to resolve conflicts.

In conclusion, our review of the literature identified four mechanisms that firms could use to support the development of competence and goodwill trust in the early stages of a new relationship with an unfamiliar partners: gathering information about the partner's competencies, setting out mutual goals and objectives, relying on personal trust, and relying on shared problem solving rather the contract based dispute resolution. While the first mechanism is useful to build competence trust, the latter can be deployed to support goodwill

trust building. We also find some, but limited support for applying these mechanisms in the context of NPD relationships. By no mean exclusive, the four trust building mechanisms we have identified above provide a good start to explore the development of organisational trust with unfamiliar partners in an NPD context.

RESEARCH METHODOLOGY

We followed a qualitative case study research design (Yin, 1994) involving four cases of new supplier relationships in NPD in one telecom organisation (Telco). The selection of the cases followed the intensity and maximum variation criteria (Miles and Huberman, 1994). The intensity criterion (Miles and Huberman, 1994) was used to select the NPD projects which involved new relationships with strategic technology suppliers. The reason for this focus was to enable the researchers to identify cases where new supplier involvement in NPD was stronger. Existing research shows that strategic technology suppliers are stronger involved and tighter integrated in NPD (Parker *et al.*, 2008). In all four cases, the technology delivered by the chosen suppliers was also of strategic importance to the company, in that it provided a key feature to differentiate the new product in its market. In this respect, the technology delivered by the chosen suppliers was a key contributor to the ability of the company to compete. Therefore, it is likely that the supplier involvement in NPD would be high. Focusing on instances where the phenomenon is highly present enables the researchers to collect rich, in depth information (Miles and Huberman, 1994).

The maximum variation criterion was used to identify four contrasting types of NPD projects in terms of (1) product type (radical versus incremental), and (2) project success, assessed in terms of process performance and product effectiveness (Brown and Eisenhardt, 1994). Telco assesses process performance in terms of NPD time, and product effectiveness in terms of the degree to which the product met R&D targets: speed to market, and quality and number of features. Focusing on contrasting cases enables the documentation of the diverse variations of the phenomenon and the identification of common patterns across these variations (Miles and Huberman, 1994). The characteristics of the projects are presented in Table 3.

Table 3. Cases: product type and targets

Case	**Product type**	**Product development time**		**Product targets**	
		Delays	*Original schedule*	*Quality and number of features*	*Time to market*
C1	INCREMENTAL (add to existing product lines)	4 months	12 months	according to specification	missed time to market target
C2		10 months	12 months	poor quality features	very late to market
C3	RADICAL (new-to-the-company)	12 months	12 months	according to specification, but below original quality expectations	very late to market

C4		no delays	6 months	according to specification	within the target

Data was gathered through semi-structured interviews, participant observation and documentation. Sixteen in-depth semi-structured interviews with eleven respondents, covering a range of aspects associated with NPD, were conducted between 2007 and 2008.

The respondents included: the head of R&D (also the acting head of the business unit at the time), the country head of R&D software, the head of technology, the head of quality, the site head of R&D software, and the head of site programme centre (all members of the R&D management team), a product development manager, a software engineer, a representative of Business Development and a representative of Sourcing (members of NPD teams), and a program manager (leading a NPD team). The spread of respondents ensured that researchers were able to collect a range of perspectives on NPD and supplier involvement. A report analysing the NPD process was sent back to the management team for verification. One of the authors was able to use participant observation which enabled the collection of in-depth data about supplier involvement in the four chosen NPD projects within Telco over the two year period. A report of the supplier involvement was also sent back to the management team for verification. As suggested by Yin (1994), documentation was used primarily to corroborate and augment evidence from the interviews and participant observation. Documentation included internal memos and other reports of the company, and publicly available information such as annual reports, news reports and industry analysis studies.

Data analysis involved deductive coding, casual mapping, and narrative building. A list of codes was developed prior to the interviews, based on the literature review. As suggested by Miles and Huberman (1994) for deductive coding, the list was refined constantly during data collection and data analysis. Based on the codes, casual maps were used to identify the relations among variables eventually leading to conclusion drawing and verification. Based on the casual maps, narratives were developed for each of the four products involved. During data collection and analysis, the list of codes as well as the narratives produced were constantly checked and agreed by both authors in order to minimise the potential for bias.

NPD IN TELCO

Telco is a business unit of a large telecom company serving the end consumer market. Telco operates in a market characterised by fast changing technology and market requirements. Product life cycles are approximately 6 months; hence speed-to-market is the key driver in NPD, and development time are short varying between four months for simple, incremental products, up to 24 months for complex, radical new products. Short NPD cycles coupled with relatively small investments in each new product lead to a large number of new products under development, typically fifty to seventy at any one time.

There are three types of suppliers involved in NPD in Telco: original design manufacturer (ODM) suppliers, capacity suppliers and technology suppliers. The unit relies extensively on ODM suppliers in NPD to cope with the need to develop fast a large number of products with limited resources. ODM suppliers are first tier suppliers, having full responsibility for the design, building, and implementation of the product, including the integration of other of-the-shelf or third party components, and for manufacturing the product. Capacity suppliers fill resources gaps in development for ODM and/or technology suppliers, for example in terms of

product design or implementation, where specific skills in different technologies are required. Capacity suppliers generally operate as first tier suppliers. Technology suppliers are responsible for the delivery of either a hardware or software platform, or a specific component that has to be integrated within the platform. Technology suppliers generally operate as second tier suppliers, with the ODM having the responsibility to coordinate the interaction between them and Telco. Nevertheless, Telco negotiates the contract directly with technology suppliers, and is often involved directly in the interaction between the ODM and the technology suppliers.

In an effort to reduce sourcing costs, Telco relies on a few, trusted technology suppliers. The practical approach to manage a smaller supplier base involves the development of a database of "preferred suppliers" with whom the company has had a good working relationship in the past. The first step in supplier selection is always to identify whether an existing supplier has the required technical competencies. Relying on existing suppliers means that Telco already has reliable information concerning suppliers' competencies, and that goodwill trust developed during previous exchanges. New suppliers are generally involved only when the technical capabilities required to develop a new product within the existing supply base are inadequate. As explained by the head of technology, "*so long as we don't find [an] actual gap in the portfolio of the strongest suppliers, it is difficult for others to get in*". The selection of new technology suppliers involves extensive contract negotiation. An important part of this process is competencies assessment where Telco formally evaluates the technological capabilities of the supplier to meet the new product requirements where the relevant information is collected directly from the supplier.

The next sections discuss the mechanisms that Telco employs to develop trust with new technology suppliers in four NPD projects.

TRUST BUILDING WITH NEW TECHNOLOGY SUPPLIERS: FOUR PROJECTS

The trust building mechanisms employed in the four projects are summarised in Table 4 and discussed at large in the rest of this section.

Table 4. The four case studies – trust building mechanisms

Case	Product 1	Product 2	Product 3	Product 4
Setting mutual goals and aims	Telco is keen to reduce dependency on its existent technology supplier, while the new supplier is keen on future business with the unit and with the parent organisation => strong mutual commitment to the success of the relationship.	No evidence	The supplier's goals are unclear and it shows lack of commitment by abandoning the development of the technology for future products. The supplier's unwillingness to show any flexibility in dealing with Telco's requests also shows lack of supplier's interest in the relationship.	No evidence
Relying on personal trust	No evidence	No evidence	No evidence	Personal trust between the individuals from the two firms (based on previous successful working relationship) lays out the basis for the relationship.
Relying on shared problem solving versus contract based dispute resolution	The new supplier's strong commitment, willingness to compromise and adapt to Telco's requirements facilitates shared problem solving to deal with the problems emerging during product development	When problems occur, the third party that recommended the supplier is capable to take over the coordination of the relationship with the supplier. All technical problems are solved during extensive negotiations. Compromises are reached due to the efforts of the third party to mediate the relationship between the supplier and Telco.	When problems occur, The third party that recommended the supplier lacks the capability to deal with the technical problems and is therefore unable technically to resolve the conflicts. The lack of supplier's commitment jeopardise product development. Shared problem solving at team level often fails and contract based negotiation at management level is relied upon to settle emerging disputes.	When problems occur, the two companies work closely together, keep in constant communication, and spend a lot of effort in solving jointly the technical problems.

Gathering information about the partner's capabilities & reputation	Telco relies extensively on its experience in developing similar products and underestimates the suppliers' technical capabilities => problems during product development when the supplier is not capable of delivering what Telco considered standard specifications for the product.	Telco relies on the recommendation of a trusted third party (the platform supplier in the product architecture) to select the new supplier. The party assures Telco that the supplier posses the required competencies as its products have successfully been integrated within previous versions of the platform in previous collaborations between the supplier and the third party.	Telco relies on the recommendation of a trusted third party (the ODM in the product architecture) to select the new supplier. The party assures Telco that the supplier posses the required technical competencies as the two have successfully collaborated in the past (albeit on products based on different versions of the technology).	Telco relies extensively on the personal knowledge of the manager in the supplier organisation in assessing the supplier technical capabilities => it overestimates the supplier's ability to develop the technology.

Case 1

Product1 was an extension of a current product line. The development of the technology platform for Product1 was outsourced to TechSup1, a new supplier. TechSup1 is the second largest player in its technology market. The market leader with over half of the market share was Telco's traditional supplier for this technology. TechSup1 was considered as a supplier for Product1 because Telco was keen on reducing its dependency on its traditional supplier. Moreover, TechSup1 provided technology with additional features which were not offered by its traditional supplier and which enabled the differentiation of Product1 in the market, such as smaller hardware components, faster boot-up time, and faster overall speed. Expanding the supply base for a key technology and differentiating the product were the key objectives of Telco in establishing the relationship with TechSup1. They acted as powerful incentives for Telco to commit to the relationship. Similarly, TechSup1 was strongly motivated to make this relationship work. TechSup1's objective was to use Product1 as a platform for future exchanges with the parent organisation in a range of other, more lucrative, product markets. Evidence of TechSup1's strong commitment was its flexibility and willingness to adapt to the requirements of Telco both during contract negotiations (for example agreeing to favourable pricing conditions from the start without the need for prolonged negotiations), and during product development (for example agreeing to implement all customer software features and user interface configurations required by Telco at no additional cost). Consequently, both partners had clear complementary goals at the outset of the relationship which enhanced their mutual commitment to the relationship.

An important part of the supplier selection process involved the assessment of TechSup1's capabilities. Product1 was an incremental improvement of a previous product, and Telco used the same technology in a range of other products. Based on its prior experience of developing similar products with technologies provided by its regular supplier, Telco assumed that all suppliers in the respective technology market would meet what they considered standard requirements for the product such as the level of power consumption. Contract negotiations focused instead on assessing whether TechSup1 possessed the required capabilities to provide the new technology features that enabled Telco to differentiate Product1 from its competitors' offerings. During product development it became evident however that while TechSup1 could deliver the differentiating features, its abilities to deliver standard features did not meet Telco's expectations. This gap between Telco's standard product requirements and TechSup1's capabilities significantly delayed product development, as Telco's requirements were either impossible to meet (for example they required a completely different type of hardware), or extremely difficult to implement by TechSup1. A compromise had to be reached during product development, which meant that some of the product features end up performing below Telco's standard product specifications. This compromise also required TechSup1 to make significant changes to its technology to adapt to Telco's requirements. The compromise was possible as a result of extensive negotiations throughout product development. The negotiations were successful primarily due to TechSup1's willingness to accommodate Telco's requests: during the entire product development, TechSup1 worked intensively and closely with Telco's NPD team to improve the performance of the standard features. In the end, despite the technical problems, the effort made by TechSup1 in accommodating Telco's requests meant that Product1 was delivered only four months late, and largely within quality specifications. In this case, the setting of clear goals at the outset of the relationship leading to mutual commitment enabled effective shared problem solving during the relationship to build goodwill trust, when the mechanisms to build competence trust through information gathering failed.

Case 2
Product2 was an extension of an existing product line. Product2 development involved two technology suppliers: an existing platform supplier, and a new component supplier – TechSup2.

The key reason for involving a new component supplier was the need for Telco to access new specialised technologies to expand its product line. TechSup2 was chosen at the strong recommendation of the platform supplier who knew the supplier well and had already validated its technology with the platform that was to be used for Product2 in prior collaborations, although for products relying on different versions of the platform. The platform supplier was well trusted by Telco being one of their long term strategic technology partners. Their recommendation provided the key basis for Telco's assessment of TechSup2 technological competencies.

However, during product development it became evident that the integration problems between the platform and TechSup2's component were greater than originally anticipated. Product2 involved incremental innovations both of its platform and of its component technologies. The cumulative effect of these incremental innovations required Telco and TechSup2 to acquire significant new technological knowledge. For example, both Telco and its platform and component suppliers were required to develop new technologies for speech compression and transmission (i.e. audio digital signal processing (DSP) algorithms) and manage their integration in the platform. None of the parties anticipated the extent of the new knowledge required in the development of what was seen as an incremental improvement of existing products.

A number of problems come to fore during product development and manufacturing: for example the audio performance did not meet Telco's original expectations, and the NPD team had, over several iterations, to make a number of changes both in the hardware and mechanical design, and in the audio DSP algorithms. These technical problems led to significant delays, and required compromises in product quality. Such compromises required extensive negotiations and coordination among the parties, as the new component delivered by TechSup2 had to be integrated into the new platform provided by the platform supplier. These technical issues were overcome, and the product did eventually reach the market, as a consequence of the intervention of the platform supplier that took over the coordination of the product architecture. For example, the platform supplier spent significant effort helping TechSup2 to understand the design of the underlying platform and its performance constraints so as to smooth the integration of the component. The platform supplier also actively participated in solving any technical issues surrounding the integration of the DSP components into the platform during product development. In this case, the intervention of a third party was critical in building goodwill trust through shared problem solving as the mechanisms to develop competence trust based on trusted third party recommendation failed.

Case 3
Product3 was a radical new product for Telco, requiring the development of significant new technological capabilities from the outset. TechSup3 was recommended by the ODM supplier involved in Product3 which was a trusted, long term supplier for Telco. The ODM suppliers had successfully collaborated with TechSup3 in the past, delivering similar products to Telco's competitors, although using technologies of a previous generation. TechSup3 also

had a strong reputation for excellence in the market. Telco also gathered information directly from TechSup3 through a detailed assessment of TechSup3's technical capabilities.

However, during product development it became evident that there was a significant gap between TechSup3's platform capabilities and Telco's expectations. Although Product3 was a new product for Telco, it was based on an incremental improvement of TechSup3's existing technology. The platform delivered by TechSup3 was not fully completed at the time Product3's development began, but both parties expected that the development would require only limited effort. In reality however, there were significant difficulties in the integration of the new desired product features into the new platform, for example concerning the certification of some of the platform's technical standards. Technical problems meant that platform development took much longer than anticipated, and the end result was of poor quality. These difficulties were exacerbated by the ODM's inability to manage TechSup3 and to deal with the technical difficulties associated with Product3 development. The ODM lacked the technical knowledge to implement the platform delivered by TechSup3: it had difficulties understanding the overall platform architecture and the design guidelines, was unable to "*ask the right questions*", and regularly misunderstood the answered provided by TechSup3. TechSup3 was also not willing to spend any more effort than required by the contractual obligations to help the ODM to implement the platform. While the ODM was supposed to mediate the relationship between Telco and TechSup3, as it become clear that the ODM was unable to resolve the emerging conflicts with TechSup3, Telco was forced to take charge of the relationship.

Telco also encountered significant difficulties in attempting to solve directly the emergent conflicts with TechSup3. Communication between the two partiers' corresponding NPD teams was fraught by delays and misunderstanding. For example, faults that were seen by Telco as critical were considered by TechSup3 as exceptional cases, and therefore not prioritized for correction. Throughout product development, TechSup3 showed little willingness to accommodate Telco's requests, their responses to Telco's demands were routinely late and inadequate generally showing a lack commitment make the relationship work. During Product3 development, TechSup3 was also going through a major reorganisation of their business, which meant that fewer resources than necessary were allocated to the delivery of the new platform for Product3. Due to the technical difficulties encountered during platform development, TechSup3 decided to abandon the platform for future products. As their commitment to the project waned, TechSup3 struggled to develop the new platform in time and at the expected quality. As communication worsened, efforts to resolve the conflicts through negotiation at product development team level regularly failed, and Telco's NPD team was often required to ask for the intervention of Telco's business management to rely on contract clauses to resolve disputes.

In this case, the firm fails to build both competency and goodwill trust and consequently had to invest significant more effort than originally expected to conclude the project. To deal with the delays and quality issues, Telco had to add progressively more resources to Product3 development, including software testing subcontractors and design engineers to aid with quality issues, and to support the technology supplier during development to speed up the project. Moreover, the team was forced to compromise on quality, and reduce the number of features which were initially planned to be incorporated into the product.

Case 4

Product4 was a new product for Telco, but not for the market where competitors had launched similar products. Keen to access the new technology required to develop Product4, Telco used a new technology supplier - TechSup4. A key role in the selection of TechSup4 was the existence of a prior good working relationship between the managers from the two firms who have worked together previously which provided an early indication of the supplier's capabilities. Telco also gathered information directly from TechSup4 to assess their technology capabilities. However, overreliance on personal knowledge of TechSup4 meant that assumptions were made about TechSup4's technology which proved to be wrong. For example, Telco assumed that when TechSup4 presented a "complete solution" it implied that the platform had been implemented in a product before, and that TechSup4 therefore had all the required processes and tools in place. However, during contract execution it became evident that TechSup4's "complete solution" had not been used in any other products before Product4. Consequently, a number of unexpected technical problems – such as the lack of appropriate tools and processes in place to implement the platform - emerged during manufacturing and delivery. Telco worked closely together with TechSup4 to overcome these difficulties, and significant efforts were invested in negotiations to reach a compromise. For example, over a period of several months, Telco organised daily meetings with TechSup4, and regularly sent specialists to TechSup4 premises to support the development activity. Telco also actively helped TechSup4 to manage the technical problems by providing adequate expertise throughout the entire development process. This approach to shared problem solving meant that Product4 was launched on-time and at the specified quality. This case illustrates the role that personal trust and shared dispute resolution played in building goodwill trust to deal with the problems emerging from inadequate competence assessment.

DISCUSSIONS

The analysis of the NPD projects identified four mechanisms for building trust in new NPD relationships which are used both in radical and incremental NPD projects (see Table 5).

Table 5. Trust building mechanisms in NPD new supplier relationships

Trust building mechanisms	**Mechanisms employed to build trust with unfamiliar NPD partners**
Competence trust	***Gathering information about the partner's competencies*** through: • Communication with the partner to conduct a formal assessment of their technical competencies (Product1,2,3&4) • Third party recommendation and prior successful collaborations between the new partner and existing partners at organisational level (Product2&3) and at personal level (Product 4)
Goodwill trust	***Setting out mutual aims and objectives*** by • Relying on partner's incentive / motivation to use this relationship as a platform for future business and on the focal firm's objective of attracting a new partner to reduce its dependency on the existing supplier for this technology to generate mutual commitment (Product1) ***Relying on personal trust*** by: • Relying on previous good working relationship between the individuals enacting the organisational relationship to select the partner (Product4) ***Shared problem solving*** by: • Negotiation, compromise and good coordination skills to solve emergent conflicts (Product1,2&4) instead of escalating problems to management level

and resort to contract based dispute resolution (Product3).

The key mechanism to build competence trust with a new supplier is through gathering information about a partner, either through direct communication (Das and Teng, 2001), or through firm's networking activities (Creed and Miles, 1996). In all our cases, the firm relies extensively on both approaches to gather information to build competence trust. As found by Croom (2001), we find that the supplier's reputation and recommendation from a third party as well as personal recommendation act as a powerful selection criterion, as they provide information to complement the formal assessment of supplier's competencies that is done through direct communication with the firm. However, in all the cases, the information collected to assess a partner's competencies failed to provide accurate data.

There could be at least two explanations for this failure. First, Telco operates in a dynamic market characterised by fast-paced technology change and transient customer demands. In such market there is a high level of technological uncertainty which makes it more difficult to assess new suppliers' technical competencies. In these conditions it is difficult for a company to ensure that accurate information is gathered as the technology and the products change fast. Consequently, information about the partner's capabilities based on previous versions of the technology might be inadequate to assess their competencies in developing the new version. Our findings indicate that gathering information about existing supplier's competencies to build competence trust is difficult under conditions of fast pace of technological change.

A second explanation can be found by looking at Telco's own capabilities. By and large, Telco relies on existing suppliers to organise NPD. One of the key capabilities in Telco is its large database of preferred suppliers whose competencies have already been assessed. The development of the database has reduced the time and effort involved in identifying appropriate suppliers in NPD. However, overreliance on suppliers from the existing database makes it very difficult for new suppliers to obtain contracts with Telco, and consequently reduces the need for Telco to frequently assess the capabilities of new suppliers. Arguably, infrequent assessment of new suppliers reduces Telco's ability to develop and maintain adequate capabilities in gathering information to effectively assess new suppliers' competencies.

The difficulties encountered in using the gathering information mechanism effectively to develop competence trust are partially dealt with by deploying alternative mechanisms to support goodwill trust building with unfamiliar suppliers. The failure of deploying effectively competence trust building mechanisms is dealt with by deploying goodwill trust building mechanisms, in particular establishing mutual goals and objectives (which explains the success of Product1), by relying on personal trust (Product4), and by relying on shared problem solving wither directly (Product1&4) or through the intervention of the long term, trusted partner (which explains the resolution of the technical problems for Product2). This result supports Sako's (1997) finding that goodwill trust has a stronger impact on relationship performance than competence trust. We find that the mechanisms to build goodwill trust with unfamiliar partners can support the relationship if the mechanisms to build competence trust fail. Our study suggests that efforts focusing on building goodwill trust are essential if the firm's efforts to effectively gather information to build competency trust fail.

In contrast with Bstilger's (2006) results, we find that in all our cases, shared problem solving becomes necessary during product development to support goodwill trust development as the mechanism employed to build competency trust fail. As it becomes evident that the performance of the supplier is below expectations, the organisation is keen to avoid opportunistic behaviour from further deteriorating the relationship. In all four cases, Telco invests significant efforts in joint negotiation, coordination and compromise with the supplier to deter opportunistic behaviour. However, we also find that such shared problem solving are more successful in building trust when their use has been predated by other mechanisms to build goodwill trust (either relying on personal trust or on building mutual interests) during contract negotiation (Product1 and 4). In contrast, when no other goodwill trust building mechanisms have been used, the ability of the firm to deploy effectively shared problem solving to fails and the firm is forced to rely on contract based dispute resolution to negotiate conflicts which hampers trust building and ultimately damages the NPD relationship (Product3).

Another key finding from the study concerns the role of third parties in support goodwill trust building. Most of research on trust building mechanisms focuses on dyadic relationships both at personal (Rousseau et al., 1998; Zucker, 1986) and organisational level (Nooteboom, 1996; Ring and Van der Ven, 1992; Sako, 1997). In this context, the role of third parties is generally limited at representing a source of information about the partner's reputation (Creed and Miles, 1996) to support competence trust building. While our research supports this finding – we find that third parties were important source of information about supplier competencies in Products2&3 - our findings also suggest that third parties can play a critical role in the development of goodwill trust by facilitating shared problem solving during the relationship (Product2) or through their inability to fulfil their obligations in dealing with the supplier (Product3).

CONCLUSIONS

R&D literature has shown that collaboration and trust are important in driving NPD success. Most literature focuses on trust development over time, and little work has been done to explore how firms can develop trust fast in relationships that require collaboration from the outset. We explore trust building mechanisms in new NPD relationships with technology suppliers. Drawing from a short review of trust building mechanisms, we identify four mechanisms to build organisational trust with new technology suppliers in NPD: gathering information about a partner to build competency trust, and setting mutual goals, relying on personal trust and shared problem solving to build goodwill trust. Our research finds that when the mechanisms to build competency trust fail (for example where the company's ability to gather information and asses a new partner competencies is poor or when the company operates in a highly dynamic environment where information gathering is difficult), the most effective mechanism to build trust is shared problem solving. Our findings also highlight the interdependency between the different mechanisms employed to develop goodwill trust: shared problem solving is found to be more effective to build goodwill trust in NPD relationships in the presence of strong mutual interests and strong personal bases for trust. Our research also suggests that trusted third parties play a critical role not only in supporting competence trust building but also to support the development of goodwill trust through shared problem solving during the relationship with unfamiliar partners.

One of the key limitations of the paper is the exclusive focus on Telco in gathering information about trust building mechanisms. While this approach fits with the definition of trust as the perceptions of the trustor (i.e. Telco) in the trustee (the unfamiliar supplier), a more complete view of the relationship would have required data to be collected from all the parties involved including the trustee and the third party. Another limitation refers to the exploratory approach to research design which while enabling the collection of rich data, also precludes generalisation of the findings to other settings. Moreover, using the intensity criterion to select the cases means that findings will be limited to highly intense manifestations of the phenomenon, rather than encompassing extensive occurrences (Miles and Huberman, 1994). For example, strategic technology suppliers represent only a small proportion of suppliers in Telco, albeit a critical one. Therefore, the findings of this study are restricted to NPD projects characterised by strong supplier involvement in technological intensive organisation.

One avenue for further research is the development of a large scale survey to test the extent to which the different mechanisms are used to develop trust in new relationships in the context of different types of NPD (e.g. radical versus incremental). Another avenue is to explore the mechanisms using in-depth case studies that include all the parties involved in developing a new product and cover a wider range of projects and / or organisations. For example, in our study we found that these mechanisms are used similarly in radical and incremental NPD projects. We also did not found any significant differences between how the mechanisms are used in the successful and unsuccessful NPD projects. Examining a larger number of projects might unveil whether firms employ the trust building mechanisms in a different way depending on the type of project and it might identify whether there are any links between how these mechanisms are used and NPD outcome.

REFERENCES

Barney, J.B. and Hansen, M.H. (1994) Trustworthiness as a source of competitive advantage. *Strategic Management Journal*, 15(), 175-216.

Bigley, G.A. and Pearce, J.L. (1998). Straining for shared meaning in Organization Science: Problems of trust and distrust. *The Academy of Management Review*, 23(3), 405-421.

Blau, P. (1964). *Exchange and Power in Social Life*. Wiley: New York.

Blomqvist, K., Hurmelinna, P. and Seppanen, R. (2005) Playing the collaboration game right – balancing trust and contracting. *Technovation*, 25(5), 497-5-4.

Blomqvist, K., Hurmelinna-Luakkanen, P., Nummela, N. And Saarenketo, S. (2008) The role of trust and contracts in the internationalization of technology-intensive Born Globals. *Journal of Engineering and Technology Management*, 25(1-2), 123-135.

Bidault, F. and Castello, A. (2009) Trust and creativity understanding the role of trust in creativity-oriented joint development, *R&D Management*, 39(3), 259-270.

Brown, S. L. and Eisenhardt, K. M. (1995). Product Development: Past Research, Present Findings, and Future Directions. *The Academy of Management Review*, 20(2), 343-378.

Bstieler, L. (2006). Trust formation in collaborative new product development. *Journal of Product Innovation Management*, 1(1), 56-72.

Child, J. (2001) Trust: The fundamental bond in global collaboration, *Organizational Dynamics*, 29(4), 274-288.

Chesbrough, H., Vanhaverbeke, W. and West, J. (2006) *Open Innovation: Researching a new paradigm*, Oxford: Oxford University Press.

Creed, D. R. and Miles, R. E. (1996). Trust in organizations: A conceptual framework linking organizational forms, managerial philosophies, and the opportunity costs of controls. In Kramer, R. M. and Tyler, T. R. (eds.), *Trust in Organizations: Frontiers of Theory and Research*, Thousand Oaks, CA: Sage, pg. 16-38.

Croom, S.R. (2001) The dynamic capabilities concept: examining the processes of key supplier involvement in collaborative product development, *European Journal of Purchasing & Supply Management*, **7**, 29-37.

Das, T.K. and Teng. B-S. (1998) Between trust and control: Developing confidence in partner cooperation in alliances. *The Academy of Management Review*, 23(3), 491-512

Das, T.K. and Teng, B-S. (2001). Trust, control, and risk in strategic alliances: An integrated framework. *Organization Studies*, 22(2), 251-283.

Das, T.K. and Teng, B-S. (2004) The risk-based view of trust: A conceptual framework. *Journal of Business and Psychology*, 19(1), 85-116.

Davenport, S., Davies, J. and Grimes, C. (1998) Collaborative research programmes: building trust from difference. *Technovation*, 19(1), 31-40

Dodgson, M. (1993) Learning, trust, and technological collaboration. *Human Relations*, 46(1), 77-95

Dyer, J.H. and Chu, W. (2003) The role of trustworthiness in reducing transaction costs and improving performance: empirical evidence from the United States, Japan, and Korea. *Organization Science*, 14(1), 57-68.

Granovetter, M. (1985) Economic action and social structure: The problem of embeddedness. *The American Journal of Sociology*, 91(3), 481-510.

Gulati, R. (1995) Social structure and alliance formation patterns: A longitudinal analysis, *Administrative Science Quarterly*, 40(4), 619-652.

Hallen, L., J. Johanson, and N. Seyed-Mohamed. 1991. Interfirm Adaptation in Business Relationships. *Journal of Marketing*, 55(), 29-37.

Håkansson, H. and Sharma, D. (1996). Strategic Alliances in a Network Perspective. in Iacobucci, D. (ed) *Networks in Marketing*, Sage Publications: London, 108-124.

Lui, S. S. and Ngo, H. (2004). The role of trust and contractual safeguards on cooperation in non-equity alliances. *Journal of Management*, 30(4), 471-485.

Macneil, I. R. (1980) *The New Social Contract. An Inquiry into Modern Contractual Relations*. Yale: Yale University.

Madhok, A. (1995) Revisiting multinational firms' tolerance for joint ventures: A trust-based approach. *Journal of International Business Studies*, 26(1), 117-137.

Mayer, R.C., Davis, J.H. and Schoorman, F.D. (1995) An integrative model of organizational trust. *The Academy of Management Review*, 20(3), 709-734.

McEvily, B., Perrone, V. and Zaheer, A. (2003) Trust as an Organizing Principle. *Organization Science*, 14(1), 91-103.

McKnight, D.H., Cummings, L.L. and Chervany, N.L. (1998). Initial trust formation in new organizational relationships. *The Academy of Management Review*, 23(3), 473-490.

Miles, M. B. and A. M. Huberman. 1994. *Qualitative Data Analysis: An Expanded Sourcebook*. Thousand Oaks: Sage Publications.

Miyamoto, T. and Rexha, N. (2004).Determinants of three facets of customer trust. A marketing model of Japanese buyer-supplier relationship. *Journal of Business Research*, 57(3), 312-319

Morgan, R.M. and Hunt, S.D. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing*, 58 (July), 20-38

Nooteboom, B. (1996). Trust, opportunism and governance: A process and control model. *Organization Studies*, 17(6), 985-1010.

Parker, D. B., Zsidisin, G.A. and Ragatz, G.L. (2008). Timing and extent of supplier integration in new product development: A contingency approach. *Journal of Supply Chain Management* 44(1), 71-83.

Petersen, K.J., Handfield, R.B. and Ragatz, G.L. (2003). A model of supplier integration into New Product Development. *Journal of Product Innovation Management*, 20(4), 284-299.

Phillips, W.; Lamming, R.; Bessant, J. and Noke, H. (2006) Discontinuous innovation and supply relationships: strategic dalliances. *R&D Management*, 36(4), 451-461

Ragatz, G.L., Handfield, R.B. and Scannell, T.V. (1997) Success factors for integrating suppliers into new product development. *Journal of Product Innovation Management*, 14(3), 190-202

Ring, P.S. and Van de Ven, A. H. (1994) Development process of cooperative interorganizational relationships. *Academy of Management Review*, 19(1), 90-118.

Ring, P.S. & Van de Ven, A. H. (1992) Structuring Cooperative Relationships between Organisations. Strategic Management Journal, **13**, 483-498.

Rousseau, D.M., Sitkin, S.B., Burt R.S. and Camerer, C. (1998) Not so different after all: a cross-discipline view of trust, *Academy of Management Review*, 23(3), 393-404.

Sako, M. (1992). *Prices. Quality and Trust. Inter-firm relations in Britain & Japan*, Cambridge: Cambridge University Press.

Sako, M. (1997). Does trust improve business performance? In Lane, C. and Backmann, R. (eds) *Trust within and between organizations*, Oxford: Oxford University Press, pg. 88-117

Sako, M. and Helper, S. (1998). Determinants of trust in supplier relations: Evidence from the automotive industry in Japan and the United States. *Journal of Economic Behavior and Organization*, 34(3), 387-417

Schiele, H. (2006) How to distinguish innovative suppliers? Identifying innovative suppliers as a new task for purchasing. *Industrial Marketing Management*, **35**, 925-935.

Walter, A. (2003). Relationship-specific factors influencing supplier involvement in customer new product development. *Journal of Business Research*, 56(9), 721-733.

Wu, Z. and Choi, T. (2005). Supplier-supplier relationships in the buyer-supplier triad: Building theories from eight case studies. *Journal of Operations Management*, 24(1), 27-52.

Yin, R. K. 1994. *Case Study Research. Design and Methods*. California: Sage Publication.

Zaheer, A., McEvily, B. and Perrone, V. (1998). Does trust matter? Exploring the effects of interorganizational and interpersonal trust on performance. *Organization Science*, 9(2), 141-15

Zucker, L.G. (1986) Production of trust: Institutional sources of economic structure: 1840-1920. *Research in Organizational Behaviour*, 8(), 53-111.